

IN THE CLAIMS:

Please amend Claims 1, 3 to 10, 12 to 18 and 20, and add new Claims 21 to 24 as shown below. The claims, as pending in the subject application, read as follows:

1. (Currently Amended) ~~An image~~ A color processing method of ~~generating~~ determining a combination of color material ~~data for using signals of~~ a plurality of kinds of color materials ~~to output an image for reproducing a color represented by an input color signal~~, said method comprising the steps of:

~~inputting an image signal;~~

~~obtaining~~ determining a plurality of combinations of the plurality of kinds of color materials, ~~corresponding to each of the combinations being capable of reproducing a color represented by the inputted image~~ input color signal value;

~~calculating~~ setting a function which is smooth and nonlinear and which represents a relation between a color signal and a total use amount of the color materials, based on a signal of a representative color and the a total use amount of the color materials material use amount of the representative color for each of the plurality of combinations of the plurality of kinds of color materials;

~~determining~~ calculating ~~a nonlinear smooth variation of the total use amount of the color materials material use amount with respect to a variation of the value of a predetermined color represented by image signals corresponding to the input color signal by using the function;~~ and

~~selecting the total color material use amount meeting the determined non-linear smooth variation of the total color material use amount from the determined plurality of combinations of the plurality of kinds of color materials;~~

determining the combination of color material signals corresponding to the input color signal from the plurality of combinations of the plurality of kinds of color materials, based on the input color signal and the calculated total use amount of the color materials

~~such that the total color material use amount of the plurality of kinds of color materials meets a smooth function for the total color material use amount within a range of the value of the image signal that can be inputted.~~

2. (Cancelled)

3. (Currently Amended) ~~A color~~ An image processing method as claimed in claim 1, wherein said step of ~~generating~~ determining the combination includes ~~generating~~ determining the combination corresponding to the ~~inputted image~~ input color signal with reference to a table, which determines the combination of the plurality of kinds of color material so that the total ~~color material~~ use amount of the ~~plurality kinds of color materials~~ material, which is determined according to the combination of the plurality of kinds of color materials ~~material~~, and meets the ~~smooth~~ function for the total ~~color material~~ use amount within a range ~~of~~ for the image input color signal ~~that can be inputted~~.

4. (Currently Amended) A color ~~An image~~ processing method as claimed in claim 1, wherein the function is a spline function ~~further comprising the step of forming the smooth function for the total color material use amount.~~

5. (Currently Amended) A color ~~An image~~ processing method as claimed in claim 4, wherein said step of ~~forming~~ setting the ~~smooth~~ function includes displaying a function for a total ~~color material~~ use amount for a predetermined color on a display device and ~~forming~~ setting the ~~smooth~~ function based on input by an operation on the display.

6. (Currently Amended) A color ~~An image~~ processing method as claimed in claim 1, wherein of the plurality of kinds of color ~~material are~~ materials comprise yellow, magenta, cyan, and black.

7. (Currently Amended) A color ~~An image~~ processing method as claimed in claim 1, wherein the plurality of kinds of color ~~material are~~ materials comprise yellow, magenta, cyan, black, and light magenta, having lower concentration than the magenta, and light cyan, having lower concentration than the cyan.

8. (Currently Amended) A color ~~An image~~ processing method as claimed in claim 1, wherein the color materials comprise inks ~~material is ink.~~

9. (Currently Amended) A color ~~An image~~ processing method as claimed in claim 1, wherein the color materials comprise toners ~~material is toner.~~

10. (Currently Amended) ~~An image~~ A color processing apparatus for ~~generating~~ determining a combination of color material ~~data for using~~ signals of a plurality of kinds of color materials ~~to output an image~~ for reproducing a color represented by an input color signal, comprising:

~~input means for inputting an image signal;~~

~~means for obtaining~~ determining a plurality of combinations of the plurality of kinds of color materials, ~~corresponding to~~ each of the combinations being capable of reproducing a color represented by the ~~inputted image~~ input color signal value,

~~means for calculating~~ setting a function which is smooth and nonlinear and which represents a relation between a color signal and a total use amount of the color materials, based on a signal of a representative color and the a total use amount of the color materials ~~material use amount of the representative color for each of the plurality of combinations of the plurality of kinds of color materials;~~

~~means for determining~~ calculating a nonlinear smooth variation of the total use amount of the color materials ~~material use amount with respect to a variation of the value of a predetermined color represented by image signals~~ corresponding to the input color signal by using the function;[[,]] and

~~means for selecting the total color material use amount meeting the determined non-linear smooth variation of the total color material use amount from the determined plurality of combinations of the plurality of kinds of color materials;~~

means for determining the combination of color material signals corresponding to the input color signal from the plurality of combinations of the plurality

of kinds of color materials, based on the input color signal and the calculated total use amount of the color materials

~~such that the total color material use amount of the plurality of kinds of color materials meets a smooth function for the total color material use amount within a range of the value of the image signal that can be inputted.~~

11. (Cancelled)

12. (Currently Amended) A color ~~An image~~ processing apparatus as claimed in claim 10, wherein said ~~data generating~~ means for determining determines ~~generates~~ the combination corresponding to the ~~inputted image~~ input color signal with reference to a table, which determines the combination of the plurality of kinds of color materials so that the total ~~color material~~ use amount of the ~~plurality of kinds of~~ color materials, ~~which~~ is determined according to the combination of said plurality of kinds of color materials, and meets the ~~smooth~~ function for the total ~~color material~~ use amount within a range of for the image input color signal ~~that can be inputted~~.

13. (Currently Amended) ~~An image~~ A color processing apparatus as claimed in claim 10, wherein the function is a spline function ~~further comprising function forming means for forming the smooth function for the total color material use amount.~~

14. (Currently Amended) A color ~~An image~~ processing apparatus as claimed in claim 13, wherein said ~~function forming~~ means for setting displays a function

for a total ~~color material~~ use amount for a predetermined color on a display device and ~~forms~~ setting the ~~smooth~~ function based on input by an operation on the display.

15. (Currently Amended) A color ~~An image~~ processing apparatus as claimed in claim 10, wherein the plurality of kinds of color ~~material are~~ materials comprise yellow, magenta, cyan, and black.

16. (Currently Amended) A color ~~An image~~ processing apparatus as claimed in claim 10, wherein the plurality of kinds of color ~~material~~ materials comprise are yellow, magenta, cyan, black, and light magenta, having lower concentration than the magenta, and light cyan, having lower concentration than the cyan.

17. (Currently Amended) A color ~~An image~~ processing apparatus as claimed in claim 10, wherein the color materials comprise inks ~~material is ink~~.

18. (Currently Amended) A color ~~An image~~ processing apparatus as claimed in claim 10, wherein the color materials comprise toners ~~material is toner~~.

19. (Cancelled)

20. (Currently Amended) A computer-readable medium storing a program to make a computer execute ~~an image~~ a color processing method of ~~generating~~ determining a combination of color material ~~data for using signals of~~ a plurality of kinds of color

materials ~~to output an image~~ for reproducing a color represented by an input color signal,
said method comprising the steps of:

~~inputting an image signal;~~

~~obtaining~~ determining a plurality of combinations of the plurality of kinds of
color materials, ~~corresponding to each of the combinations being capable of reproducing a~~
color represented by the inputted image input color signal value;

~~calculating~~ setting a function which is smooth and nonlinear and which
represents a relation between a color signal and a total use amount of the color materials,
based on a signal of a representative color and the a total use amount of the color materials
material use amount of the representative color for each of the plurality of combinations of
the plurality of kinds of color materials;

~~determining~~ calculating a nonlinear smooth variation of the total use amount
of the color materials material use amount with respect to a variation of the value of a
predetermined color represented by image signals corresponding to the input color signal
by using the function; and

~~selecting the total color material use amount meeting the determined non-~~
~~linear smooth variation of the total color material use amount from the determined plurality~~
~~of combinations of the plurality of kinds of color materials;~~

determining the combination of color material signals corresponding to the
input color signal from the plurality of combinations of the plurality of kinds of color
materials, based on the input color signal and the calculated total use amount of the color
materials

~~such that the total color material use amount of the plurality of kinds of color materials meets a smooth function for the total color material use amount within a range of the value of the image signal that can be inputted.~~

21. (New) A color processing method as claimed in claim 1, wherein the representative color is a color having a highest saturation in each of hues of colors of the plurality of kinds of color materials.

22. (New) A color processing method as claimed in claim 1, wherein said determining step determines the combination of the color material signals by selecting a combination of the color material signals nearest to a combination of the color material signals corresponding to input color signal of the calculated total use amount, from the plurality of combinations of the plurality of kinds color materials.

23. (New) A color processing apparatus as claimed in claim 10, wherein the representative color is a color having a highest saturation in each of hues of colors of the plurality of kinds of color materials.

24. (New) A color processing apparatus as claimed in claim 10, wherein said means for determining determines the combination of the color material signals by selecting a combination of the color material signals nearest to a combination of the color material signals corresponding to input color signal of the calculated total use amount, from the plurality of combinations of the plurality of kinds color materials.